

REMARKS

Claims 1-27 are pending in the subject application. Claims 1-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,358,729 to Ohkuma et al. and rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,358,729 to Ohkuma et al. in view of U.S. Patent No. 2,287,599 to Bulfer et al. Applicant respectfully traverses the rejections for the reasons expressed herein below.

A. Request to Withdraw the Finality of the Rejection

As set forth in MPEP 706.07(a), "under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p)."

It is respectfully submitted that the Action mailed March 2, 2005, introduces a new ground of rejection (*i.e.* the rejection of claims 1-27 under 35 U.S.C. § 103, citing a new reference, U.S. Patent No. 2,287,599 to Bulfer *et al.*) that was neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

Applications previous Response dated January 26, 2005, included only non-substantive amendments to the claims that merely addressed matters of form (See, claims 1, 5, 13, 14, 16, 21, 22, 24, and 27). It is submitted that these amendments

neither altered the scope of the claims nor necessitated an addition search by the Examiner. Nevertheless, the March 2, 2005 Action included a new ground of rejection which the Examiner made final.

Accordingly, it is respectfully submitted that the finality of the rejection is premature. Therefore, in order for Applicant to fully address the new ground of rejection, Applicant requests that the finality of the Action be withdrawn.

B. Rejection of claims 1-27 under 35 U.S.C. § 102(b)

Claims 1-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,358,729 to Ohkuma et al. ("Ohkuma"). Applicant respectfully traverses this rejection and request reconsideration of claims 1-27.

The subject application recites a method of producing resistant starch comprising: selecting a reaction temperature, acidifying unmodified starch to a pH, wherein the pH is optimum to convert the unmodified starch to resistant starch when at the reaction temperature, heating the acidified unmodified starch to the reaction temperature, and maintaining the acidified unmodified starch close to the reaction temperature until the maximum yield of resistant starch has been obtained while maintaining a whiteness level between about 50 and about 100. The applicants have discovered that "there is an optimum pH, at a given reaction temperature, where resistant starch development is maximized while maintaining an acceptable color." (See page 8, paragraph [0029]).

Ohkuma discloses an indigestible dextrin and method of forming the same. Ohkuma does not disclose or recognize that by varying the pH of the starch used in the

dextrinization process, greater amounts of resistant starch can be produced while maintaining acceptable color. Ohkuma provides no teaching of a relationship between reaction temperature and an optimum pH for formation of resistant starch.

The Examiner points to Figures 2 and 3 to support the position that Ohkuma discloses a relationship between lower pH and increased whiteness. Applicants respectfully disagree with the Examiner's reading of the Ohkuma disclosure. Closer review of the disclosure reveals that Figures 2 and 3 contain data from experiments examining characteristics of the indigestible dextrin product of Ohkuma "when it is used in foods" (column 35, lines 18-19), and in comparison with glucose and maltose under specific conditions. (See Experimental Example 14, column 35, line 56 to column 36, line 2). Specifically, Experimental Example 14 compares changes in coloration due to heating the indigestible dextrin product, glucose or maltose in the presence of the amino acid glycine. Experimental Example 14 uses the dextrin product of Example 6 (column 35, lines 18-21). The change in coloration from heating each of these compounds with glycine is examined at two pH's, i.e., pH 4.5 and 6.5, and the results are presented in Figures 2 and 3. Figures 2 and 3 show the "indigestible dextrin is not really different in the increase of coloration degree from glucose or maltose" and "is usable generally in the same manner as these materials". (Column 35, line 67 to column 36, line 2). Essentially, Ohkuma shows that if the indigestible dextrin product is heated with amino acids, such as in food products, the color of the resultant food product will be similar to that of glucose/amino acid or maltose/amino acid food products.

Accordingly, the portions of Ohkuma cited by the Examiner clearly do not disclose or recognize the relationship between an optimum pH for starch formation at

the reaction temperature while maintaining a whiteness level between about 50 and about 100, as recited by claims 1-27 of the subject application.

Furthermore, it should be noted that the “coloration” discussed in Figures 2 and 3 at the noted pH’s are not related to the “whiteness” of the Ohkuma dextrin product reported in Table 13, as suggested by the Examiner. Rather, the dextrin product treated under the conditions set forth in Example 6 (and thereafter used in Experimental Example 14, see column 35, lines 18-21) was twice decolorized with activated carbon before being submitted to the conditions of Experimental Example 14 (see Example 6, column 34, lines 8-13). Thus, the color of the dextrin in the product used in Experimental Example 14 has been changed by post-formation decolorization and does not correspond to the “whiteness” that results from the starch formation process, as set forth in the claims of the subject application.

Figures 2 and 3 do not show that Ohkuma recognized that “the degree of coloration at pH 4.5 is lower than the degree in a reaction at pH 6.5” for the method of producing a resistant starch, as argued by the Examiner.

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. MPEP § 2131. Ohkuma provides no teaching of a relationship between reaction temperature and an optimum pH during the formation of resistant starch. Thus, Ohkuma does not teach each and every element of the claimed invention and withdrawal of the rejections of claims 1-27 under 35 U.S.C. § 102(b) is respectfully requested.

C. Rejection of claims 1-27 under 35 U.S.C. § 103(a)

Claims 1-27 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Ohkuma in view of U.S. Patent No. 2,287,599 to Bulfer et al. ("Bulfer"). Applicant respectfully traverses this rejection and request reconsideration of claims 1-27.

Ohkuma clearly does not teach the present invention, as set forth in claims 1-27 of the subject application, for the reasons set forth in Section B. Further, Ohkuma does not suggest the recited inventions. As set forth above, the portions of Ohkuma cited by the Examiner are directed to post-formation processing of the starch and not to starch formation.

Bulfer discloses a treatment of starch for the production of soluble dextines of good adhesive properties suitable for use as a library paste or like adhesive. (Column 1, lines 15-18). The method comprises heating starch in a dry state with monochlor acetic acid and chlorine gas maintained at dextrinizing temperature. (Claim 1, column 4, lines 30-36). The product from the Bulfer method "will be a white dextrine of 85% solubles (80% to 90%) having a fluidity of 11 (10-11.5) in a mixture consisting of 3 parts of dextrine to 4 parts of water by weight." (Column 2, lines 18-21).

To rely on a reference as a basis for rejection under 35 U.S.C. § 103, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention is concerned. MPEP § 2141.01(a). To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. MPEP § 2143.03. In addition, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to

modify the reference or to combine reference teachings. MPEP § 2143. Put another way, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination or modification. MPEP § 2143.01.

The focus of the subject application is the production of starch resistant to digestion by humans. Bulfer is non-analogous art since it pertains to the production of dextrine for use in library pastes and adhesives. The Bulfer dextrine is not for consumption nor is there any mention of it being resistant to digestion.

Further, should it be determined that Bulfer is analogous art, Bulfer, when combined with Ohkuma, does not teach or suggest the present invention as recited in claims 1-27 of the subject application. In the office action, the Examiner states that Ohkuma does not teach a whiteness level above 66, but that Bulfer teaches a method for producing resistant starch having a whiteness level of 80-90%. (Office Action, page 5). Applicants respectfully disagree that Bulfer teaches a method of producing resistant starch having a whiteness level of 80-90%. Closer review of Bulfer reveals no measurement of the whiteness of the Bulfer dextrine product. The only reference to a level of "80% to 90%" in Bulfer corresponds to the percent solubles and not whiteness. (See column 2, lines 18-21). Ohkuma combined with Bulfer does not disclose or suggest a resistant starch with a whiteness level above 66 and therefore the combined references do not teach all of the claim limitations in the subject application.

In addition, neither Ohkuma nor Bulfer, alone or in combination, teach a relationship between reaction temperature and an optimum pH during the formation of resistant starch. As discussed above, Ohkuma only mentions pH in reference to food

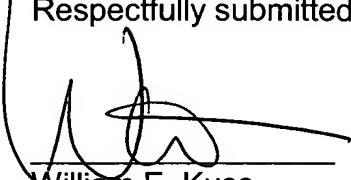
product preparation incorporating the Ohkuma dextrin, whereas Bulfer does not discuss optimizing the pH at a given temperature of the dextrinization reaction to maximize resistant starch development while maintaining a low level of color development. In fact, Bulfer is concerned with forming a dextrine adhesive that forms "a smoother paste, a paste which has better tack or adhesiveness" (column 2, lines 35-37) and not an indigestible starch for consumption, as shown in Ohkuma. Accordingly, no motivation exists for combining Ohkuma with Bulfer.

In light of the above remarks, Applicant respectfully submits that no basis exists for a finding that claims 1-27 are obvious, under 35 U.S.C. § 103, over Ohkuma in view of Bulfer. Accordingly, withdrawal of the rejection of claims 1-27 over Ohkuma in view of Bulfer is respectfully requested.

CONCLUSION

Applicant submits that claims 1-27 of the subject application recite a novel and non-obvious method for producing resistant starch. The cited references do not teach or suggest the claimed process. In view of the foregoing, Applicant respectfully submits that the subject application is in condition for allowance. Accordingly, reconsideration of the rejections and allowance of claims 1-27 at an early date are earnestly solicited.

If the undersigned can be of assistance to the Examiner in addressing issues to advance the application to allowance, please contact the undersigned at the number set forth below.

Respectfully submitted,

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